

wherein G_1 , G_2 , and G_3 are independently CH or N and G_4 is CH, provided that one or two of G_1 to G_3 is N;

X is CH and Y is N;

Z_1 is a group represented by the formula $-SO_2-$ or $-CH_2-$;

Z_2 is a single bond, a lower alkylene group, a lower alkenylene group or a lower alkynylene group;

Q is an optionally substituted aryl group in the form of a monocyclic or fused hydrocarbon ring having 6-14 carbon atoms or an optionally substituted heteroaryl group in a monocyclic or fused cyclic form having 1-4 heteroatoms selected from the group consisting of oxygen, sulfur, and nitrogen atoms;

01 R_1 is either any substituent selected from group A (a hydrogen atom; a halogen atom; a trifluoromethyl group; a trifluoromethoxy group; a carboxyl group; a carbamoyl group; an amino group; a cyano group; a nitro group; a lower alkanoyl group; a lower alkoxy group; a lower alkoxycarbonyl group; a mono- or di-substituted lower alkylamino group; a cyclic amino group optionally substituted by a lower alkyl group or a hydroxyl group and being a pyrrolidinyl group, a piperidinyl group, a morpholino group, or a piperazinyl group; a lower alkanoylamino group; a phenyl group; a phenoxy group; a benzyloxy group; a benzoyl group; a mercapto group; a lower alkylthio group; a lower alkylthiocarbonyl group; a hydroxyl group; or a mono- or di-substituted lower alkylaminocarbonyl group), or an oxygen atom that forms a N-oxide group with N in any one of $G_1 - G_4$, or a lower alkyl group or a lower alkenyl group that may be substituted with a desired number of substituents of group A or a lower alkoxy group or a lower alkoxy group which may be substituted with a desired number of substituents of group A or a lower alkoxy group;

each of R_2 , R_3 , R_4 , R_5 , R_6 , R_7 , R_8 and R_9 forms an oxo group when combined with the carbon atom on the ring to which they are bound, or they are each a hydrogen atom, a carboxyl group, a lower alkylcarbonyl group, a lower

alkoxycarbonyl group, a lower alkoxy carbonylalkylcarbonyl group, an optionally mono- or di-lower alkyl substituted carbamoyl group, a lower alkoxy carbamoyl group, a lower alkoxy carbonylalkylcarbamoyl group, a pyrrolidin-1-ylcarbonyl group, a morpholinocarbonyl group, a piperazin-1-ylcarbonyl group that may be substituted by a methyl group in 4-position, a piperidin-1-ylcarbonyl group that may be substituted by a methyl group or a hydroxyl group in 4-position, an N-phenylcarbamoyl group or a group represented by the formula -CONH(CH₂)_pS(O)_qR₁₀ or -CONH(CH₂)_rNR₁₁R₁₂, or a lower alkyl group that may be substituted by R₁₅;

each of R₁₀, R₁₁ and R₁₂ independently represents a hydrogen atom, a lower alkyl group, a phenyl group or a lower alkylphenyl group;

01 R₁₅ is a carboxyl group, a lower alkoxy carbonyl group, a hydroxyl group, a lower alkoxy group, a lower alkanoyloxy group, an amino group, a mono- or di-substituted lower alkylamino group, a lower alkanoylamino group, a lower alkylsulfonylamino group, a cyclic amino group optionally substituted by a lower alkyl group or a hydroxyl group and being a pyrrolidinyl group, a piperidinyl group, a morpholino group, or a piperazinyl group, or an N-hydroxyimino group;

provided that R₆ may also represent two lower alkyl groups in geminal;

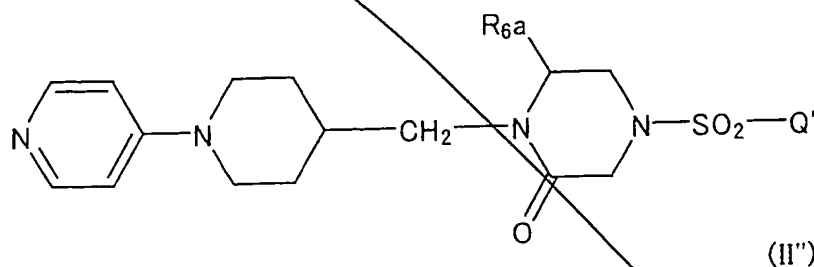
also provided that if any one of the substituents R₂ - R₉ includes cyclic group, such cyclic group may be substituted by one or two lower alkyl groups;

m is an integer of 0 - 3 and n is 1, p is an integer of 0 - 4, q is an integer of 0 - 2, and r is an integer of 1 - 4.

2. (thrice amended) The method according to claim 1, wherein the substituent of the optionally substituted aryl or heteroaryl group as Q of the formula (I') is 1 - 4 groups in any combinations that are selected from among substituents of either group B (a halogen atom, a trifluoromethyl group, a trifluoromethoxy group, a trifluoromethanesulfonyl group, a carboxyl group, a carbamoyl group, an amino group, a cyano group, a nitro group, a lower alkanoyl group, a lower alkoxy group, a lower alkoxy carbonyl group, a mono- or di-

01 substituted lower alkylamino group, a lower alkanoylamino group, a cyclic amino group optionally substituted by a lower alkyl group or a hydroxyl group and being a pyrrolidinyl group, a piperidinyl group, a morpholino group, or a piperazinyl group, a mercapto group,, a lower alkylthio group, a lower alkylthiocarbonyl group, a lower alkylsulfonyl group, a lower alkylsulfinyl group, a hydroxyl group or a mono- or di-substituted lower alkylaminocarbonyl group, an amidino group which is optionally substituted with sulfamoyl or carbamoyl group, the formula -NHCR₁₃-NHR₁₄ (wherein R₁₃ is an optionally cyano-substituted imino group or a group -CHNO₂; R₁₄ is a hydrogen atom or a methyl group), a phenyl group, a phenoxy group, a heteroaryl group, a heteroaryloxy group, or a group represented by phenyl-S(0)t or heteroaryl-S(0)t (wherein t is an integer of 0 - 2), the heteroaryl group of group B is a 5- or 6-membered aromatic monocyclic group containing not more than four oxygen atoms, sulfur atoms or nitrogen atoms, provided that all aromatic rings of group B may be mono-, di-, or tri-substituted by any substituent of group C (a halogen atom, a trifluoromethyl group, a cyano group, a hydroxyl group, an amino group, a mono- or di-substituted lower alkylamino group, a cyclic amino group optionally substituted by a lower alkyl group or a hydroxyl group and being a pyrrolidinyl group, a piperidinyl group, a morpholino group, or a piperazinyl group, a nitro group, a carboxyl group, a mono or di-substituted lower alkylaminocarbonyl group, a lower alkyl group, a lower alkoxy group or a lower alkoxy carbonyl group)) or a lower alkyl group that may be substituted by a desired number of substituents of group B.

6. (amended) A compound of the formula (II''):



wherein

R_{6a} is

1) a group selected from among a carboxyl group, a lower alkylcarbonyl group, a lower alkoxy carbonyl group, and a lower alkoxy carbonyl alkyl carbonyl group;

2) a group selected from among an optionally mono- or di-lower alkyl substituted carbamoyl group, a lower alkoxy carbamoyl group, a lower alkoxy carbonyl alkyl carbamoyl group, a pyrrolidin-1-yl carbonyl group, a morpholinocarbonyl group, a piperidin-1-yl carbonyl group which may be substituted by a methyl group or a hydroxyl group in 4-position, an N-phenyl carbamoyl group or a group selected from among the groups represented by the formulae $-\text{CONH}(\text{CH}_2)_p\text{S}(\text{O})_q\text{R}_{10}$ and $-\text{CONH}(\text{CH}_2)_r\text{NR}_{11}\text{R}_{12}$ (wherein R_{10} , R_{11} , and R_{12} are independently a hydrogen atom, a lower alkyl group, a phenyl group, or a lower alkylphenyl group; p is an integer of 0-4, q is an integer of 0-2, and r is an integer of 1-4), or

3) a lower alkyl group optionally substituted by R_{15} ; R_{15} is a carboxyl group, a lower alkoxy carbonyl group, a hydroxyl group, a lower alkoxy group, a lower alkanoyloxy group, an amino group, a mono- or di-substituted lower alkylamino group, a lower alkanoylamino group, a lower alkylsulfonylamino group, a cyclic amino group optionally substituted by a lower alkyl group or a hydroxyl group and being a pyrrolidinyl group, a piperidinyl group, a morpholino group, or a piperazinyl group, or an N-hydroxyimino group; and

Q' represents $-\text{Z}_2-\text{Q}$, wherein Z_2 is a single bond, a lower alkylene group, a lower alkenylene group, or a lower alkynylene group and Q is an optionally substituted aryl group in the form of a monocyclic or fused hydrocarbon ring having 6-14 carbon atoms or an optionally substituted heteroaryl group in a monocyclic or fused cyclic form having 1-4 heteroatoms comprising an oxygen, a sulfur, or a nitrogen atom or a salt thereof.

17. (twice amended) A compound represented by the following formula (I'') or a salt thereof:

wherein G_1 , G_2 , and G_3 are independently CH or N and G_4 is CH, provided that one or two of G_1 to G_3 is N;

X is CH and Y is N;

Z_1 is a group represented by the formula $-SO_2-$ or $-CH_2-$;

Z_2 is a single bond, a lower alkylene group, a lower alkenylene group or a lower alkynylene group;

Q is an optionally substituted aryl group in the form of a monocyclic or fused hydrocarbon ring having 6-14 carbon atoms or an optionally substituted heteroaryl group in a monocyclic or fused cyclic form having 1-4 heteroatoms selected from the group consisting of oxygen, sulfur, and nitrogen atoms;

R_1 is either any substituent selected from group A (a hydrogen atom; a halogen atom; a trifluoromethyl group; a trifluoromethoxy group; a carboxyl group; a carbamoyl group; an amino group; a cyano group; a nitro group; a lower alkanoyl group; a lower alkoxy group; a lower alkoxycarbonyl group; a mono- or di-substituted lower alkylamino group; a cyclic amino group optionally substituted by a lower alkyl group or a hydroxyl group and being a pyrrolidinyl group, a piperidinyl group, a morpholino group, or a piperazinyl group; a lower alkanoylamino group; a phenyl group; a phenoxy group; a benzyloxy group; a benzoyl group; a mercapto group; a lower alkylthio group; a lower alkylthiocarbonyl group; a hydroxyl group; or a mono- or di-substituted lower alkylaminocarbonyl group), or an oxygen atom that forms a N-oxide group with N

in any one of G1 – G4, or a lower alkyl group or a lower alkenyl group that may be substituted with a desired number of substituents of group A or a lower alkoxy group or a lower alkoxy group which may be substituted with a desired number of substituents of group A or a lower alkoxy group;

each of R₂, R₃, R₄, R₅, R₆, R₇, R₈ and R₉ forms an oxo group when combined with the carbon atom on the ring to which they are bound, or they are each a hydrogen atom, a carboxyl group, a lower alkylcarbonyl group, a lower alkoxy carbonyl group, a lower alkoxy carbonylalkylcarbonyl group, an optionally mono- or di-lower alkyl substituted carbamoyl group, a lower alkoxy carbamoyl group, a lower alkoxy carbonylalkylcarbamoyl group, a pyrrolidin-1-ylcarbonyl group, a morpholinocarbonyl group, a piperazin-1-ylcarbonyl group that may be substituted by a methyl group in 4-position, a piperidin-1-ylcarbonyl group that may be substituted by a methyl group or a hydroxyl group in 4-position, an N-phenylcarbamoyl group or a group represented by the formula -CONH(CH₂)_pS(O)_qR₁₀ or -CONH(CH₂)_rNR₁₁R₁₂, or a lower alkyl group that may be substituted by R₁₅;

each of R₁₀, R₁₁ and R₁₂ independently represents a hydrogen atom, a lower alkyl group, a phenyl group or a lower alkylphenyl group;

R₁₅ is a carboxyl group, a lower alkoxy carbonyl group, a hydroxyl group, a lower alkoxy group, a lower alkanoyloxy group, an amino group, a mono- or di-substituted lower alkylamino group, a lower alkanoylamino group, a lower alkylsulfonylamino group, a cyclic amino group optionally substituted by a lower alkyl group or a hydroxyl group and being a pyrrolidinyl group, a piperidinyl group, a morpholino group, or a piperazinyl group, or an N-hydroxyimino group;

provided that R₆ may also represent two lower alkyl groups in geminal;

also provided that if any one of the substituents R₂ - R₉ includes cyclic group, such cyclic group may be substituted by one or two lower alkyl groups;

m is an integer of 0 - 3 and n is 1, p is an integer of 0 - 4, q is an integer of 0 - 2, and r is an integer of 1 - 4;

0³ with the proviso that when these compounds of formula (I'') in which all of R₂, R₃, R₄, R₅, R₆, R₇, R₈ and R₉ are independently selected from hydrogens or oxo groups and Q is selected from the group consisting of five- or six-membered heterocycle, phenyl, phenyl alkenyl, and naphthyl, any of which is optionally substituted, are excluded.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.